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THE INSIDE HISTORY OF NORTH AMERICAN MYIOLOGY¹

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ITAQUAQUECETUBA, SAO PAULO, BRAZIL

The history of this subject in the United States has unfortunately been characterized by a petty spirit of rivalry and jealousy for the past three decades. This, perhaps the most difficult subject as regards taxonomy, meriting on this very account the most concerted and amicable relations among its students, has met with the exact opposite during its development in North America.

Say was among the first to describe muscoid forms of this fauna. He was accompanied and followed by various European students, among whom Desvoidy, Wulp, Macquart, Walker and Bigot are conspicuous. Wiedemann and Loew described certain forms. Osten-Sacken and Williston contributed in America, especially Williston. Such were the beginnings of muscoid taxonomy in North America up to the year 1888, marked thus far by no spirit of rivalry or jealousy on this side of the Atlantic. The jealousy shown by Macquart for Desvoidy belongs on the other side.

When Riley wished the Diptera on Townsend in 1888, he conferred on the latter a lasting favor but a legacy of petty annoyances. Townsend had been devoted to the Coleoptera, but had

¹ The word myiology is here coined to designate the study of the muscoid flies or superfamily Muscoidea, which comprises the old calyptrate series exclusive of the Anthomyioidea.

later developed a very special interest in the Heteroptera; the Diptera had attracted him not at all up to that time, and would have formed his very last choice. But there was no one in Washington at the time to attend to this order of insects, while the other orders were already allotted. Therefore Townsend, conforming to the wish of his chief, began work on the Diptera, and was attracted almost from the first by the muscoid forms. For Riley's part in this matter, Townsend has been most grateful, for no other possible group of organisms could have proved so fecund of interest in his eyes, considered from all points of view.

It appears that, quite unknown to Townsend, Coquillett had conceived an interest in the muscoid groups at about this time, but had so far published nothing. Being in California on economic work, and removed from both collections and complete literature, Coquillett had little opportunity to indulge his desire for study of the subject. He chafed under the restriction and developed a bitter hatred of Townsend and his work; a hatred which he nursed diligently until his death, and which prohibited him even from conversing with Townsend except under circumstances of the direst necessity.

At the first opportunity that offered, Coquillett secured a transfer to Washington and plunged into the study of the so-called Tachinidæ, the result being his memorable "Revision" which appeared in 1897. In this publication, he was unsparing of his contempt for Townsend and his work, throwing into the synonymy every genus and species that Townsend had described up to that time that offered the least plausibility for such action. He indulged his hatred of Townsend here to the utmost, and doubtless secured an overwhelming satisfaction in so doing. At the same time he possessed but a poor eye for muscoid characters and a small judgment of their value, and was thus quite unconscious of the precariousness of his footing in the stand he had taken. His pronouncements, like the whole fabric of his work, are falling apart and away as investigation progresses in the groups he treated.

During all of this time and up to the last, Townsend harbored no animosity toward Coquillett and would have been glad at any

time to converse with him on muscoid work, but found him so unapproachable that he would not even answer questions couched in the most courteous terms and offered in the most friendly spirit. The animosity of Coquillett brought a handful of animosities in its train.

In the succeeding years up to 1905, Aldrich had been compiling his catalogue of North American Diptera, having been a general student of the Diptera and a special student of the Dolichopodidæ for some years but having done nothing with muscoid forms. His fatal mistake was in following Coquillett almost blindly as to muscoid synonymy in his catalogue. But, knowing little of the subject himself, he was easily led by the apparent simplicity and plausibility of Coquillett's treatment to fall into this error. His catalogue was published before Townsend had an opportunity to go thoroughly into the subject of Coquillett's "Revision" and expose its manifold errors hidden in the guise of plausibility.

Aldrich repeatedly ridiculed Townsend in his catalogue, and compromised himself so far in his attitude toward Townsend's work that he felt he could not gracefully retract after the latter began to point out in a wholly impartial manner the errors that had been perpetuated in the catalogue. Here was the birth of a second bitter hatred toward Townsend, as is abundantly proved by the acrid remarks in the notice of Williston's book by Aldrich in *Science* in 1908, to which Townsend published no reply.

Coquillett, shortly before his death, by the judicious exhibition of a little affability toward Walton and Thompson, made them his fast friends and particularly won the heart of Walton, who became his staunch defender. As witness of this last fact, the article by Walton in the JOURNAL OF THE NEW YORK ENTOMOLOGICAL SOCIETY in 1914 may be cited, indulging in ridicule to which Townsend did not deign to reply. Here was born a third hatred of Townsend which became very bitter until it was fortunately dispelled a few years later.

About this time, Aldrich, in a desire to vindicate himself and pose as a muscoid student, presented a paper before the 1914 meeting of the Entomological Society of America with the title

"25 Years of Muscoid Collecting," in which he still followed Coquillett's synonymy; and then, in 1916, published his book on sarcophagids. Aldrich had early committed himself to broad specific limits and unrestricted genera throughout the Diptera and was unable to renounce them; rather was he anxious to display them, and he further committed the mistake of approaching the sarcophagids from the male end, a group particularly fitted for investigation from the female end.

A comparison of Aldrich's new genera with the complex which he retained under *Sarcophaga* reveals the utmost discrepancy in generic limits. His union of the sexes was in numerous cases wrong, as he had no sure data at his command and refused to accept valuable characters already pointed out by Townsend, as well as certain important muscoid taxonomic principles. On his accession to the staff of the U. S. National Museum, he has pursued practically the same course, though gradually forced to acknowledge the mistakes of Coquillett, which he has done as apologetically as possible to the latter. But his animosity toward Townsend crops out in all his published writings, his criticism of Townsend's work being always showy and biting. He goes out of his way to compliment the work of others; but anything bearing the Townsend stamp meets with his immediate disapproval and, if he can not find some way to attack it, gets by with a mere mention, or often none at all.

Brauer, with a rare taxonomic insight, was the first muscoid student to point out definitely and explain the fact that in these groups restricted categories are absolutely essential to clearness of treatment, a fact which Townsend recognized from the first and elaborated still further. Desvoidy recognized this fact a century ago and both commented and acted on it, but did not explain it so fully as did Brauer. Knab also recognized this fact, as shown by his 1914 paper at the Entomological Society of America meeting. Aldrich refuses to admit this very outstanding and well defined principle.

In a letter to Townsend, dated May 8, 1924, Aldrich wrote concerning the paper by Webber and himself on the *Phorocera-Exorista* complex of Coquillett in the Proceedings of the U. S.

National Museum for 1924 as follows: "You will not like it, because we did not recognize enough genera to suit you. I am responsible for the generic arrangement, which cost me an immense amount of work and study." Referring to the last sentence, Townsend replied in substance as follows: "Your remark is highly significant. Instead of wasting time in an attempt to extend generic limits arbitrarily where they do not naturally fall, it is far wiser to strike a generic arrangement that shall be fairly simple and easy to follow out. Restricted genera, concisely defined, attain the greatest simplicity of treatment possible."

Aldrich replied to this under date of August 2, 1924, as follows: "It would be useless to undertake any general discussion of the limits of genera. I have, as I freely admit, much difficulty in determining them. You solve the problem by making a genus for almost every species, but you encounter precisely my difficulty when you start to group these genera into tribes. So you are no better off than I am, and I am trying to classify muscoids as nearly as possible on the same lines as other animals. I never did take any stock in your oft-repeated belief that muscoids require a different taxonomy."

The fallacy of the above argument is evident; tribal divisions, being far less numerous than generic, involve far less doubt in the final analysis. In those few cases where doubt as to tribe may arise, it is only necessary to run the fly through the tables for the tribes concerned; there will be no doubt about the genus when you reach it, if it is concisely defined in its restricted sense. By the other system, there will be no certainty about the genus, because of its loose definition, and the student will be quite unable to decide between numerous genera.

Townsend, realizing the immense number of undescribed muscoid forms and anxious to provide restricted genera for their accommodation as quickly as might be, customarily described but one species in a genus to serve as genotype, leaving various other species for future description. This custom has given rise to the idea, assiduously cultivated and advanced by Aldrich, that Townsend made a genus for every species. Nothing is

wider of the mark, for Townsend found numerous species of many of his genera but left them undescribed. It is safe to say that the restricted muscoid genera, as defined by Townsend, will average at least 5 species each. Some will be found monotypic, but other will carry from 10 to 20 species if not more.

The work of Aldrich is destructive rather than constructive. He is attempting to relegate to the synonymy as many of Townsend's restricted muscoid genera as possible, with the sole aim of vindicating his own original commitment to broad categories. It is a pity that he is so unreceptive to progressive ideas and holds so stubbornly to long-exploded concepts. He refuses absolutely to change his ideas in the light of new facts. It is evident that his work will suffer proportionately in consequence. He has a better eye than Coquillett had for muscoid characters, but he persists in ignoring important characters which Townsend has pointed out, partly from prejudice and partly from the difficulty of interpreting them.

Among these characters are the reclinate fronto-orbitals, which he refuses to differentiate from the frontals, though comparative studies of them show beyond all doubt their distinctness. In some forms, it is difficult to distinguish them in full, due to their number or variability. He attaches no importance to the geno-orbitals. Important clypeal characters he passes over, being unable to grasp them; and the same may be said of epistomal characters. Facial in relation to frontal widths he fails to notice. The height as compared with the breadth of the head is ignored. Frontal, facial, oral and occipital profiles in comparison with each other he does not mention. The exact characters of the facialia and parafacialia he omits, likewise the comparative width of the frontalia in each sex. Aristal characters are not clearly defined. His expression of venational and other wing characters is too loose to be serviceable. He pays no attention to the relative lengths of the prescutum and postscutum, nor to the form of the abdomen. The comparative size of the squamae and squamulae is disregarded. All of these characters are of generic, and some are of tribal importance. These are by no means the only important characters ignored by Aldrich. It is

usually quite impossible to place a genus in its proper tribe from his description of it. He does not know the groups sufficiently to grasp the salient characters and his remarks on relationships reveal his inexperience.

Townsend has been making detailed studies of South American muscoid forms for 15 years, and has in manuscript many diagnoses of new and old forms awaiting publication, founded on abundant material of his own collecting. Aldrich, however, with often only a single poorly preserved specimen of one sex, in groups where the two sexes are quite necessary to correct determination, is broadcasting "obiter dicta" on synonymy of genera and species both North and South American, with insufficient evidence and little experience to go on. With only a superficial knowledge of the Muscoidea, being practically but a beginner in the superfamily, without the aid of dissections and refusing absolutely to accept anything conflicting with his preconceived ideas, he is making innumerable positive statements as to synonymy of forms and identity of specimens in all groups. These statements are made with an assurance that is surprising. An experienced student of these groups would never commit himself so positively and irrevocably, without having first dissected the forms in question. It illustrates the old maxim that "fools rush in where angels fear to tread." This would be amusing but for the fact that the high assurance exhibited and the authoritative pose adopted tend to carry conviction to the unsuspecting onlooker.

If Aldrich is forced to admit that he does not understand a group, he contents himself with the statement that it contains a greatly confused mass of genera, not realizing that the confusion is all in his own head. The numerous dicta put forth by Aldrich would be interesting if true, but the trouble is that no dependence can be placed on them. They are simply the individual prejudiced opinions of a man who is unable to learn because he will not keep a receptive mind. It must be remembered that there are generically distinct muscoid species which are so similar in external characters, even as to chætotactic details, that, placed side by side under the binocular, they would

without previous dissection require much careful comparison by the most expert student of these groups in order to establish their specific distinctness! Such forms Coquillett and Aldrich would unhesitatingly pronounce the same species.

At the same time, Aldrich is attempting to trace in the U. S. National Museum collection various supposed acts and omissions on the part of Townsend and is publishing them as rapidly as he can, always calling attention to them in a deprecatory manner, telling in detail how it all happened—doing sleuth work in tracing the mental processes of Townsend as judged apparently by his own. In self defense, Townsend has had to publish details of the work he did on the collection while he was honorary custodian of it, and the exact condition in which he left it in March, 1919, so that the incorrectness of these numerous imputations may be recognized. And this in spite of having explained to Aldrich, both verbally and in writing, the exact conditions.

Aldrich pays no attention to Townsend's verbal, in-litteris or even published statements if they conflict with the concept which he wishes to present, but arranges the setting of his remarks to suit himself regardless of fact or circumstance. Worse still, facts are often distorted either to reflect against Townsend or to credit others for what he has done. It would be charitable to infer that all this is due to failing memory rather than to malice aforethought, but the question may be left open.

Thompson and Walton have dropped out of the muscoid work, so far as taxonomy goes; and so also has Harrison E. Smith, who bid fair to be a very careful muscoid student, receptive to modern ideas of taxonomy. Tothill has declared himself a lumpener of genera.

The extensive work of Brauer & Bergenstamm, which included very many North American forms sent them by Riley prior to 1888, as well as various Mexican forms from other sources, has scarcely been mentioned in the above account. They dealt impartially with the work of Townsend. Williston and Osten-Sacken were both most friendly toward Townsend and his work, and both recognized the very inferior character of Coquillett's work; in all of which they were supported by Knab, who was a student of unusual ability and breadth.

Villeneuve and Bezzi, the main European muscoid students of today; Austen, who did valuable work on Walker's types, Patton and Awati, who have done high-class work on Oriental *Stomoxys*, have all given Townsend full and impartial credit for his work.

Hough began work on the lower muscoid groups many years ago but abandoned it shortly; his published work is of such a high character that it is greatly to be regretted he did not continue.

Townsend harbors no animosity toward any one, for life is too short to waste in animosities. He writes this himself, standing off as a detached and impartial observer, contemplating his own work as though it belonged to another, and exposing this inside history only in the interests of fair play and a square deal. His main interest throughout has always lain in the broader aspects of the subject, and has included taxonomy only in so far as it conformed to relationships and provided means for positive determination of forms. His *Manual of Myiology*, still in manuscript and now for some years practically completed, is being constantly enlarged and revised by the study of new material and will eventually be published in several volumes, dealing with all aspects of the subject.

The extended studies prosecuted by Townsend on the internal reproductive systems of both sexes, the eggs and the larvae have for the first time opened the way to a sound taxonomic treatment of the Muscoidea. Thousands upon thousands of dissections of both sexes have been made, and great numbers of drawings have been on hand for from 3 to 15 years. The alimentary system has also been studied in various groups. Complete synoptic tables of the genera of the world have been in manuscript for several years, arranged in over 100 tribes. There are numerous instances of very distinct forms which seem almost alike on external characters. It only requires dissection of the females to demonstrate the fact that the slight external characters by which they differ carry generic value. Only after one has made extended series of dissections in all groups and correlated the results with the external characters can he be certain

of his determinations. But once this work has been done and the value of the external characters duly established, it is not necessary to repeat dissections for positive determination.

Such is a brief outline of the work on muscoid taxonomy in North America to date, involving also recent work in South America. Younger students are arising, from whom we may expect much. Let them keep an open mind, for a closed mind is a fatal fault in an investigator. Let them beware of prejudices and commit themselves only to a search for truth. They will then not be faced by the alternative of retraction, or continuance on a mistaken course.

THE NEW YORK STATE LIST OF INSECTS

It is gratifying to announce that the compilation of the proposed List of the Insects of New York State is now to be completed. Dr. M. D. Leonard, who was appointed Editor-in-Chief while Acting State Entomologist of New York, returned to the Department of Entomology at Cornell University, Ithaca, New York, December last to again take charge of the project. His entire time will be devoted to the completion of this list and the New York State College of Agriculture has promised publication provided the manuscript is ready by June 1, 1925.

It is estimated that over 16,000 species will be listed as occurring in New York, together with as complete distribution data within the State as is known for each species. Several orders are already completed. Over one hundred of the leading specialists are actively cooperating. The editor of the List will greatly appreciate definite New York State records in all groups and will see that full credit is given to every cooperator.